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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,978	01/25/2001	Jerome J. Johnson	COMP0044/FLE P00-2995	5218

7590 11/13/2003

INTELLECTUAL PROPERTY ADMINISTRATION  
LEGAL DEPARTMENT, M/S 35  
PO BOX 272400  
FT. COLLINS, CO 80527-2400

EXAMINER

LE, DIEU MINH T

ART UNIT	PAPER NUMBER
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2184

DATE MAILED: 11/13/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/769,978

Applicant(s)

JOHNSON ET AL.

Examiner

Dieu-Minh Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/14/02.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 34-45 is/are rejected.
- 7) ☒ Claim(s) 23-33, 46-56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**Part III DETAILED ACTION**

**Specification**

1. Claims 1-56 are presented for examination.

**Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to

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point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-22 and 34-45 are rejected under 35 U.S.C. § 103(a) as being unpatentable Olarig et al. (US Patent 6,098,132 hereafter referred to as Olarig) in view of Emerson et al. (US Patent 6,487,623 hereafter referred to as Emerson).

As per claim 1:

Olarig substantially teaches the invention. Olarig teaches:

- a method of altering memory capacity in a computer system during operation, the computer system [abstract, fig. 1, col. 1, lines 13-14 and lines 35-47]

comprising:

- powering down one of memory while leaving the remaining memory operating [fig. 1, col. 4, lines 66 through col. 5, line 4];
- inserting a semiconductor memory device [col. 1, lines 15-22] in the one of plurality of memory [col. 5, lines 1-3];

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- powering up the one of the plurality of memory [col. 3, lines 28-32];
- repeat powering down, inserting, and powering up steps until a semiconductor memory device has been inserted (i.e., powering up and down sequences) [fig. 3-4, and 24A-E, col. 8, lines 63-68 and col. 9, lines 1-32, col. 11, lines 63 through col. 12, lines 10].

Olarig does not explicitly teach:

- removable memory cartridges

However, Olarig does disclose capability of:

- an installation and removal of components of a computer system [abstract, fig. 1, col. 1, lines 13-14 and col. 41, lines 55-65]

comprising:

- a data transmission connectivity among plurality of memory modules, a IDE control, a central control logic, a memory controller, etc... via network bus [fig. 1, col. 6, lines 50 through col. 7, lines 14];
- hot-plugging of memory module (i.e., removable memory) [col. 6, lines 50-57] including memory banks (i.e., memory cartridges) [col. 8, lines 56-67];

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- a data/error code correction (ECC) used error detection and correction [col. 14, lines 37-46].

In addition, Emerson explicitly teaches:

- a replacement, upgrade and/or addition of hot-pluggable components in a computer system [abstract, fig. 4, col. 1, lines 8-13];

comprising:

- dual-in line memory modules (*i.e., plurality of removable memory cartridge*) [fig. 4, col. 4, lines 40-46 and col. 6, lines 39-65];
- the replacement, new and upgrade components into the computer memory system [col. 5, lines 49-60].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made first, to realize the Olarig's installation and removal of components of a computer system comprising a data transmission connectivity among plurality of memory modules, a IDE control, a central control logic, a memory controller, etc... via network bus and more specifically **the hot-plugging of memory module (*i.e., removable memory*) including memory banks (*i.e., memory cartridges*)** as being removable memory cartridges as claimed by

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Applicant. This is because the Olarig's installation and removal of components of a computer system does clearly perform the memory upgrade, hot-plugging, and removing during the system operation in supporting the computer data processing; second, one would modify the Olarig's installation and removal of components of a computer system to explicitly including **dual-in line memory modules (i.e., plurality of removable memory cartridge)** as taught by Emerson's a replacement, upgrade and/or addition of hot-pluggable components in a computer system in supporting data transmission/processing via memory data modules exchanging or replacement capability.

This modification would have been obvious because a person having ordinary skill in the art would have been motivated to do so to provide the memory system with plurality of memory modules or memory arrays and more specifically to memory banks or removable cartridge memory with a mechanism to enhance data performance/monitoring, data availability/reliability, and data configuring/exchanging operation via EEC means for data recovery process. It is further obvious because by utilizing this approach, memory system with a processor-based computer can be realized in high performance throughput with a high reliability and flexibility memory environment. That will correctly provide optimum data availability and transmission throughput among end

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users real-time communication and execution during memory replacement, memory exchanging, memory swapping, memory hot-plugging.

As per claims 2-4:

Olarig substantially teaches the invention. Olarig teaches:

- a method of altering memory capacity in a computer system during operation, the computer system [abstract, fig. 1, col. 1, lines 13-14 and lines 35-47]

comprising:

- an installation and removal of components of a computer system [abstract, fig. 1, col. 1, lines 13-14 and col. 41, lines 55-65]

comprising:

- hot-plugging of memory module (*i.e., removable memory*) [col. 6, lines 50-57] including memory banks (*i.e., memory cartridges*) [col. 8, lines 56-67];

Olarig does not explicitly teach:

- memory cartridge in non-redundant mode, unlocking, and data/parity information.

However, Olarig does disclose capability of:



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- an installation and removal of components of a computer system [abstract, fig. 1, col. 1, lines 13-14 and col. 41, lines 55-65]

comprising:

- dual in-line memory module used within computer installation and removal of components [col. 1, lines 15-22];
- hot-plugging of memory module (*i.e., removable memory*) [col. 6, lines 50-57] including memory banks (*i.e., memory cartridges*) [col. 8, lines 56-67];
- a data/error code correction (ECC) used error detection and correction (*i.e., data/information parity calculation*) [col. 14, lines 37-46].

In addition, Emerson explicitly teaches:

- a replacement, upgrade and/or addition of hot-pluggable components in a computer system [abstract, fig. 4, col. 1, lines 8-13];

comprising:

- dual-in line memory modules (*i.e., plurality of removable memory cartridge*) [fig. 4, col. 4, lines 40-46 and col. 6, lines 39-65];
- the replacement, new and upgrade components into the computer memory system [col. 5, lines 49-60].

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Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made first, to realize the Olarig's installation and removal of components of a computer system comprising a data transmission connectivity among plurality of memory modules, a IDE control, a central control logic, a memory controller, etc... via network bus and more specifically **the hot-plugging of memory module (i.e., removable memory) including memory banks (i.e., memory cartridges) as well as a data/error code correction (ECC) used error detection and correction (i.e., data/information parity calculation)** as being memory cartridge in non-redundant mode, unlocking, and data/parity information as claimed by Applicant. This is because the Olarig's installation and removal of components of a computer system does clearly perform the memory upgrade, hot-plugging, and removing via ECC function which performs the data/parity information for memory swapping during the system operation. It is further obvious because this memory exchanging process is based on unlocking memory and non-redundant mode in ensuring the memory inserting and removing performed correctly and smooth; second, one would modify the Olarig's installation and removal of components of a computer system to explicitly including **dual-in line memory modules (i.e., plurality of removable memory cartridge)** as taught by

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Emerson's a replacement, upgrade and/or addition of hot-pluggable components in a computer system in supporting data transmission/processing via memory data modules exchanging or replacement capability.

This modification would have been obvious because a person having ordinary skill in the art would have been motivated to do so to provide the memory system with plurality of memory modules or memory arrays and more specifically to memory banks or removable cartridge memory with a mechanism to enhance data performance/monitoring, data availability/reliability, and data configuring/exchanging operation via EEC means for data recovery process.

As per claims 5-7:

Olarig substantially teaches the invention. Olarig teaches:

- a method of altering memory capacity in a computer system during operation, the computer system [abstract, fig. 1, col. 1, lines 13-14 and lines 35-47]

comprising:

- powering down one of memory while leaving the remaining memory operating [fig. 1, col. 4, lines 66 through col. 5, line 4];

- initializing each of the semiconductor memory device [col. 1, lines 46-48 and lines 15-22] in the one of plurality of memory [col. 5, lines 1-3];
- rebuilding (*i.e., configuration*) data in each of the semiconductor memory [col. 5, lines 38-48];
  - dual in-line memory module used within computer installation and removal of components [col. 1, lines 15-22].
  - hot-plugging of memory module (*i.e., removable memory*) [col. 6, lines 50-57] including memory banks (*i.e., memory cartridges*) [col. 8, lines 56-67];
  - a data/error code correction (ECC) used error detection and correction [col. 14, lines 37-46].

In addition, Emerson explicitly teaches:

- a replacement, upgrade and/or addition of hot-pluggable components in a computer system [abstract, fig. 4, col. 1, lines 8-13];

comprising:

- dual-in line memory modules (*i.e., plurality of removable memory cartridge*) [fig. 4, col. 4, lines 40-46 and col. 6, lines 39-65];
- the replacement, new and upgrade components into the computer memory system [col. 5, lines 49-60].

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As per claims 8-9:

Olarig substantially teaches the invention. Olarig teaches:

- a method of altering memory capacity in a computer system during operation, the computer system [abstract, fig. 1, col. 1, lines 13-14 and lines 35-47]

comprising:

- inserting a semiconductor memory device [col. 1, lines 15-22] in the one of plurality of memory [col. 5, lines 1-3];

Olarig does not explicitly teach:

- memory cartridges in memory device

However, Olarig does disclose capability of:

- an installation and removal of components of a computer system [abstract, fig. 1, col. 1, lines 13-14 and col. 41, lines 55-65]

comprising:

- a data transmission connectivity among plurality of memory modules, a IDE control, a central control logic, a memory controller, etc... via network bus [fig. 1, col. 6, lines 50 through col. 7, lines 14];

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- hot-plugging of memory module (*i.e.*, *removable memory*) [col. 6, lines 50-57] including memory banks (*i.e.*, *memory cartridges*) [col. 8, lines 56-67];
- a data/error code correction (ECC) used error detection and correction [col. 14, lines 37-46].

In addition, Emerson explicitly teaches:

- a replacement, upgrade and/or addition of hot-pluggable components in a computer system [abstract, fig. 4, col. 1, lines 8-13];

comprising:

- dual-in line memory modules (*i.e.*, *plurality of removable memory cartridge*) [fig. 4, col. 4, lines 40-46 and col. 6, lines 39-65];
- the replacement, new and upgrade components into the computer memory system [col. 5, lines 49-60].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made first, to realize the Olarig's installation and removal of components of a computer system comprising a data transmission connectivity among plurality of memory modules, a IDE control, a central control logic, a memory controller, etc... via network bus

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and more specifically **the hot-plugging of memory module (i.e., removable memory) including memory banks (i.e., memory cartridges)** as being removable memory cartridges as claimed by Applicant. This is because the Olarig's installation and removal of components of a computer system does clearly perform the memory upgrade, hot-plugging, and removing during the system operation in supporting the computer data processing; second, one would modify the Olarig's installation and removal of components of a computer system to explicitly including **dual-in line memory modules (i.e., plurality of removable memory cartridge)** as taught by Emerson's a replacement, upgrade and/or addition of hot-pluggable components in a computer system in supporting data transmission/processing via memory data modules exchanging or replacement capability for the same reasons set forth as described in claim 1, **supra..**

As per claim 10:

Olarig substantially teaches the invention. Olarig teaches:

- a method of altering memory capacity in a computer system during operation, the computer system [abstract, fig. 1, col. 1, lines 13-14 and lines 35-47]

comprising:

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- configuring the semiconductor memory device [col. 5, lines 41-48];
- flushing transaction from each of the plurality of memory cartridge [col. 9, lines 52-67 and fig. 3, col. 11, lines 63 through col. 12, lines 10] in the one of plurality of memory [col. 5, lines 1-3];
- resynchronizing each of the plurality of memory cartridges [col. 5, lines 15-25].

In addition, Emerson explicitly teaches:

- a replacement, upgrade and/or addition of hot-pluggable components in a computer system [abstract, fig. 4, col. 1, lines 8-13];

comprising:

- dual-in line memory modules (*i.e., plurality of removable memory cartridge*) [fig. 4, col. 4, lines 40-46 and col. 6, lines 39-65];
- the replacement, new and upgrade components into the computer memory system [col. 5, lines 49-60].

As per claims 11-22:

These claims are similar to claims 1-10. The only minor different if that claims 11-22 introduce and call out first,



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second, third, fourth, and fifth memory cartridges for powering down, inserting memory, and powering up along with initializing and notifying memory to computer system. Claims 1-10 do perform same steps via the "repeat step" to performing powering down, inserting memory, and powering up along with initializing and notifying memory to computer system function. However, the combination of Olarig's installation and removal of components of a computer system and Emerson's a replacement, upgrade and/or addition of hot-pluggable components in a computer system do demonstrate and address the claims 11-22 invention. Therefore, theses claims are also rejected under the same rationale applied against claims 1-10. **In addition, all of the limitations have been noted in the rejection as per claims 1-10.**

As per claims 34-45:

These claims are similar to claims 1-10 and 11-22. The only minor different if that claims 11-22 introduce "removing first, second, third, fourth, and fifth memory module from memory cartridges".

However, Olarig does disclose capability of:

- an installation and **removal of components** of a computer system [abstract, fig. 1, col. 1, lines 13-14 and col. 41, lines 55-65]

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comprising:

- removing memory of the computer system [col. 1, lines 40-41];
- hot-plugging of memory module (*i.e., removable memory*) [col. 6, lines 50-57] including memory banks (*i.e., memory cartridges*) [col. 8, lines 56-67];

In addition, Emerson explicitly teaches:

- **a replacement**, upgrade and/or addition of hot-pluggable components in a computer system [abstract, fig. 4, col. 1, lines 8-13];

comprising:

- dual-in line memory modules (*i.e., plurality of removable memory cartridge*) [fig. 4, col. 4, lines 40-46 and col. 6, lines 39-65];
- **the replacement, new and upgrade components into the computer memory system** [col. 5, lines 49-60].

Therefore, theses claims are also rejected under the same rationale applied against claims 1-10 and 11-22. **In addition, all of the limitations have been noted in the rejection as per claims 1-10 and 11-22.**

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**Allowable Subject Matter**

4. Claims 23-33 and 46-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. A shortened statutory period for response to this action is set to expired THREE (3) months, ZERO days from the date of this letter. Failure to respond within the period for response will cause the application to be abandoned. 35 U.S.C. 133.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh Le whose telephone number is (703) 305-9408. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel, can be reached on (703)305-9713. The fax phone number for this Group is (703)746-7240.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

**Any response to this action should be mailed to:**

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PRIMARY EXAMINER  
ART UNIT 2184